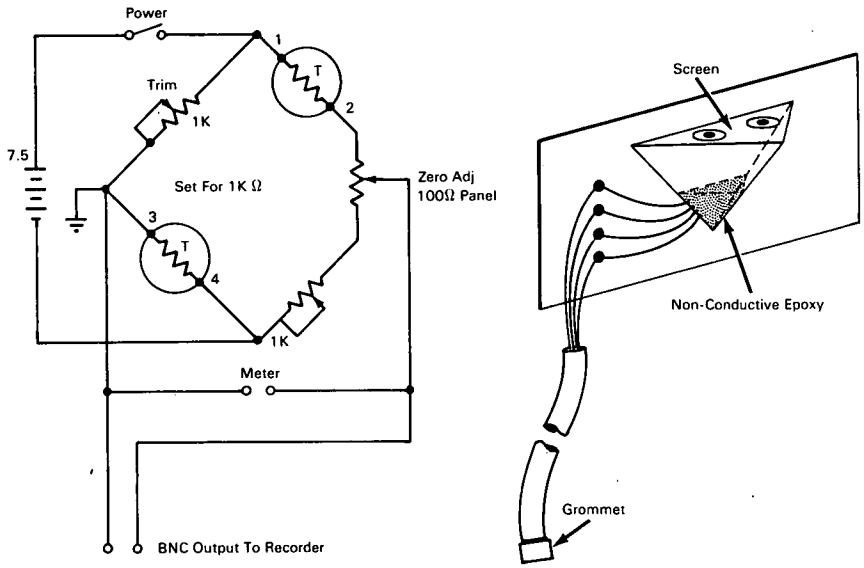
NASA TECH BRIEF

Nosepiece Respiration Monitor



The problem:

In the monitoring of the respiration rate and amplitude of a patient, or research subject, it is desirable to produce a fast response in readout devices with a sensor that neither encumbers nor discomforts. Prior art devices have incorporated chestbands or headgear that are cumbersome and have been expensive in themselves and designed for use with expensive ancillary equipment.

The solution:

A nosepiece respiration monitor that is small, comfortable for the wearer, inexpensive, and that produces rapid response signals to most conventional high impedance medical signal conditioners.

How it's done:

This monitor uses inexpensive components and measures respiration in a manner that produces a large signal with minimum delay. The system incorporates the fast response of a heated thermistor to ambient temperature changes. The thermistor is heated to an impedance of approximately 1000 ohms, from which state it is cooled by patient breath inspiration and warmed by patient breath expiration as the sensor rests beneath the patient's nostrils. The lead wires travel above the patient's ears and form a grommet-contained harness about his head simply and neatly and comfortably. High amplitude response and zero baseline of the system are due to the dual thermistor

(continued overleaf)

bridge arrangement shown in the sketch; the bridge yields approximately 22 mv/2°C (11 mv/2°C per thermistor). The nulled output may be fed to any high impedance dc amplifier, signal conditioner, oscilloscope or recording device.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Electronics Research Center
575 Technology Square
Cambridge, Massachusetts 02139
Reference: B68-10438

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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